

14TH ANNUAL REPORT TO CONGRESS

APRIL 2020

PMI

U.S. PRESIDENT'S
MALARIA INITIATIVE

LED BY



USAID
FROM THE AMERICAN PEOPLE



A MESSAGE

FROM THE U.S. GLOBAL MALARIA COORDINATOR

Together, we have saved more than seven million lives and prevented more than a billion cases of malaria since 2000. I am thankful for the dedicated bipartisan support and the generosity of the American people that has enabled the U.S. President's Malaria Initiative (PMI) to play a pivotal role in this global success. This report demonstrates how U.S. leadership, financial aid, and technical expertise continue to save lives. While I celebrate these achievements, I know we must do more to protect the more than 400,000 people worldwide—mostly young children and pregnant women in sub-Saharan Africa—who still die from this preventable disease every year. As we move closer to eradicating malaria, I see tremendous opportunities to take advantage of rapid advances in analytics and advance our use of data for better management and greater impact. With better data, we can improve decision-making, refine our approaches more rapidly, and better adapt to evolving threats such as resistance to drugs and insecticides. As PMI enters its 15th year, I look forward to building on the incredible momentum and progress we made in Fiscal Year (FY) 2019 to affect even more lives.

DR. KEN STALEY



Insecticide-treated nets are one of the life-saving interventions supported by PMI. Photo: Chris Norman/GHSC-PSM

ABOUT PMI

The U.S. President's Malaria Initiative (PMI) supports 24 partner countries in sub-Saharan Africa and three programs in the Greater Mekong Subregion in Southeast Asia to control and eliminate malaria. PMI delivers cost-effective, life-saving malaria interventions—such as insecticide-treated bed nets, indoor residual spraying, and essential medicines—alongside catalytic technical and operational assistance to equip and empower partner countries to end malaria. PMI is a multi-agency initiative, led by the U.S. Agency for International Development (USAID) and co-implemented with the Centers for Disease Control and Prevention (CDC) within the U.S. Department of Health and Human Services (HHS). PMI also has strong support from, and collaborates closely with, the U.S. Department of Defense; the HHS National Institutes of Health; Peace Corps; and other U.S. Departments, Agencies, and programs.

PMI SAVES LIVES

Thanks to generous support from the American people, PMI continues to help achieve and maintain substantial reductions in malaria cases in our partner countries while saving more lives each year.

As a global leader in the fight against malaria, PMI fills a vital role in optimizing and scaling up proven, cost-effective interventions—such as insecticide-treated nets, indoor residual spraying, diagnostic tools, and life-saving medicines—that have enabled these impressive results. PMI catalyzes its commodity investments with technical and operational assistance to generate even more impact. PMI benefited at least 570 million people at risk of malaria in FY 2019.

Preventing and controlling malaria remains a U.S. national-security and foreign-assistance priority—and is one of the most cost-effective development investments for U.S. taxpayers. Reducing malaria enables governments, civil society, faith-based organizations, and the private sector in our partner countries to unlock economic growth and realize greater human potential, which paves the path to self-reliance and fosters more productive partnerships with the United States. Thanks to the bipartisan support of Congress and the generosity of the American people, PMI invested \$729 million across 27 country programs in FY 2019.

NO WOMAN LEFT BEHIND

In the Republic of Ghana, the coverage of preventive treatments in pregnancy (IPTp) is among the highest in Africa, as 60 percent of pregnant women receive the recommended three or more doses (IPTp3) and 78 percent receive at least two. Yet coverage was uneven, and some districts were falling behind. In struggling areas, PMI funded quality-improvement coaches and brought stakeholders together to devise solutions such as outreach and home visits, on-the-job training, and mothers' support groups. This PMI support helped struggling areas catch up. For example, in the Volta Region, with assistance from PMI, IPTp3 coverage jumped from 28 percent in 2017 to 54 percent in 2019.



Midwife Grace Bunmi visits a young pregnant woman at home in Ghana, to ensure she gets preventive care to protect her and her baby from malaria. Photo: USAID/Systems for Health Project

FIGHT AGAINST MALARIA: FAST FACTS

- Caused by *Plasmodium* parasites, transmitted to people via the bite of infected *Anopheles* mosquitoes.
- 228 million cases and 405,000 deaths worldwide in 2018.
- Pregnant women and children under age five are most at risk.
- Most cases occur in Africa, but the risk is global (malaria was transmitted in the United States until the 1950s).
- Many effective interventions exist to kill mosquitoes, protect people from infection, and treat people when they are infected.



AT A GLANCE: PMI-FUNDED CONTRIBUTIONS TO FIGHT MALARIA

IN FY 2019 PMI DISTRIBUTED:



+47m
mosquito
nets (ITNs)



Insecticide
to spray
+4.9m
homes (IRS)



+27m
preventive
treatments in
pregnancy (IPTp)



+26m
seasonal
preventive
treatments (SMC)



+77m
rapid diagnostic
tests
(RDTs)



+79m
malaria
medicines
(ACTs)



TO PROTECT APPROXIMATELY:

94m people

18.6m people

9m women

6.5m children

77m people

79m people



HEALTH WORKERS TRAINED WITH PMI FUNDS IN FY 2019:

31,059
Diagnosis

39,297
Clinical Care

15,149
Preventive Treatment
in Pregnancy

52,402
Seasonal Preventive
Treatment for Children

Since 2006, in countries where PMI works, global efforts have supported:

↓ **27%** DECLINE IN
MALARIA
CASE RATES

↓ **60%** DECLINE IN
MALARIA
DEATH RATES

PMI EMPOWERS COMMUNITIES ON THE JOURNEY TO SELF-RELIANCE

PMI's staff and implementing partners on the ground help steward resources and build local capacity—bolstering national capabilities to prevent, control, and eliminate malaria through a tailored and collaborative approach. PMI works closely with National Malaria Control Programs (NMCPs), non-governmental organizations (NGOs), and the private sector to encourage local ownership and greater domestic investment in fighting malaria. PMI's assistance reinforces national malaria plans and supports governments as they implement evidence-based policies, strengthen information systems, and build capacity. Training health workers, including community health workers, is a core part of this effort. These investments foster stronger, more-resilient health networks capable of tackling malaria and other diseases.

Malaria champions come from all walks of life. Farmers, shopkeepers, and even children are powerful agents of change. PMI's funding trains and equips many to realize their shared roles in fighting malaria.

COMMUNITY HEALTH WORKERS

Eric Owino earns his living fishing on Lake Victoria, in the Republic of Kenya. His island is cut off from the clinic on the mainland, except for a ferry twice a week. Eric volunteered as a health worker because members in his community needed care, especially pregnant women and children. PMI-funded training taught Eric about malaria and how to prevent it. He now encourages his neighbors to adopt healthy behaviors. When he started, only one of the six pregnant women on the island made the trip for prenatal care. Now, all six attend and receive medicine to prevent malaria in pregnancy. Eric is one of almost 300 PMI-trained community health workers in Kenya. "I love my community and I want to help people... I am empowered and so I want to empower others."



Eric Owino is one of almost 300 community health workers in Kenya able to protect their communities from malaria thanks to PMI funding. Photo: PMI/Impact Malaria

SCHOOL CHILDREN

The mosquito might be small and powerful, but so are children at Nyize Elementary School in the Republic of Uganda. Nyize is one of 57 schools that use PMI funding to teach approximately 30,000 pupils about malaria. Poems, music, and drama help children learn, and health messages are proudly posted in classrooms, outdoors, and on buildings. Children receive PMI-funded mosquito nets for home, which allows them to live what they learn. With the tools and knowledge to stay healthy, absenteeism has dropped.



Elizabeth, age eight, explains to her classmates how mosquitoes spread malaria parasites at a malaria-smart school in Uganda. Photo: United Nations Foundation

PMI DEEPENS PARTNERSHIPS AGAINST MALARIA

PMI's success in fighting malaria depends on the strong partnerships it promotes. Throughout FY 2019, PMI worked with other U.S. Government Departments and Agencies, such as the U.S. Department of Defense and Peace Corps, and strengthened coordination with other donors, community- and faith-based groups, private-sector partnerships, and country-driven efforts through organizations such as the RBM Partnership to End Malaria and the African Leaders Malaria Alliance.

FAITH AND COMMUNITY GROUPS

In August 2019, PMI and the Bill & Melinda Gates Foundation convened religious and community leaders from Tanzania and the Republics of Rwanda and Zambia to strategize how to mobilize their networks and resources to fight malaria—especially in hard-to-reach communities. The meeting sparked community action. For example, Girl Scouts went door-to-door to help neighbors hang nets; interfaith councils led social media campaigns on malaria prevention; religious leaders added malaria messages to their sermons; and housing cooperatives held plays to mobilize communities against malaria.



Religious and community leaders share ideas on how they can use their networks and social resources to fight malaria. Photo: PMI

PRIVATE SECTOR

The 13,000 small drug stores in the United Republic of Tanzania are an essential—and often the only—easily accessible source for life-saving malaria medicines. Yet these small businesses, mostly women-owned, lack the capital to stock their shelves fully. PMI worked with Finca Bank to unlock small loans that ranged from \$200 to \$2,000 to finance the inventory store owners need to serve their communities and secure their livelihoods.



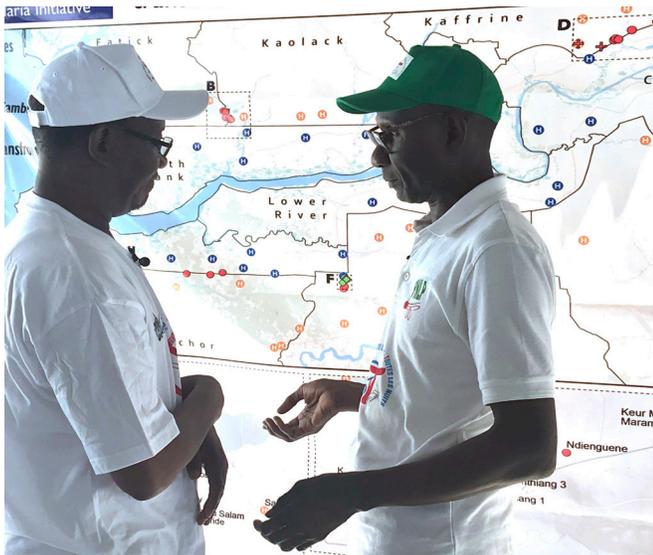
Thanks to PMI's funding, Evonia Makoyi received a small loan of \$390 to stock her pharmacy in Mkuranga District, Tanzania, with the medicine her community needs. Photo: SHOPS Plus/USAID

OTHER DONORS

In FY 2019, PMI and the Global Fund—the two largest malaria donors—further aligned commodity and funding approaches to enhance coordination and strengthen stewardship across their programs. This deeper collaboration maximizes the impact of U.S. investments. For example, the two organizations adopted joint strategies for sourcing commodities such as malaria medicines, which lowered global prices by up to 21 percent and stabilized demand.

CROSS-COUNTRY COLLABORATION

Keur Ayib is a village between two worlds. Situated on the Senegalese border, a ten-minute walk leads to its Gambian twin, Kerr Sulay. At this symbolic meeting point in May 2019, the two governments, PMI, and the Global Fund launched the world's first synchronized mass net-distribution campaign across international borders.



National Malaria Control Program Managers for Senegal and The Gambia cooperate on the joint net campaign. Behind them hangs a map of health posts that were distributing nets, developed with support from the GeoCenter in USAID's Global Development Lab. Photo: Michelle Kouletio/PMI

People and mosquitoes are always moving, so malaria keeps spreading. Coordinated planning, implementation, and data-sharing across borders benefits both countries. With funding from PMI and the Global Fund, the campaign simultaneously distributed nearly ten million mosquito nets in the Republic of Senegal and another one million in the Republic of The Gambia. For the first time, people could collect their nets from the most convenient health facility—in whichever country they chose.



Omar and his sister, Mama Ami, are safe and happy under the mosquito net their family received in the Senegambia net campaign. Photo: Ricci Shryock/The Global Fund

“In addition to the common goal and political will of neighbor countries, effective collaboration across donors is important to optimizing resources. Lessons learned from this campaign will help other countries.”

— Ministers of Health for Senegal and The Gambia

PMI ADVANCES DATA-DRIVEN MANAGEMENT

Better information drives better management. In FY 2019, PMI began transforming its data environment through early-stage development of an online platform to integrate, analyze, and share data that can improve the global fight against malaria. PMI also continued to advance data-powered solutions that informed and improved malaria programs and decision-making by governments and other leaders.

FREE INTERNET, FASTER UPLOADS

DHIS2 is the world's largest health management information system, which provides a platform to collect comprehensive health data in more than 60 low- and middle-income countries. The Government of the Republic of Angola rolled out DHIS2 nationwide in 2018, which reduced inefficient paper systems and improved data-driven decision-making. Although DHIS2 is free to use, Angolan health facilities struggled to upload data. PMI facilitated a public-private partnership between the Government and UNITEL, Angola's largest phone operator. UNITEL now provides a free URL for the DHIS2 site. As a result, reporting by health facilities via DHIS2 doubled to almost 90 percent.



Data collectors Halidou Beidou Rachidatou and Soumaila Marounfa Aissa discuss the survey of health facilities in Niger. The results will inform strategies to get life-saving supplies to the rural communities that need them. Photo: USAID GHSC-PSM

Research is critical to providing high-quality evidence for continually improving malaria-fighting tools and approaches. PMI funded 25 operational-research studies in 15 countries in FY 2019, each carefully selected to provide solutions with the potential to improve malaria programming.

SCIENCE OF ELIMINATION

In elimination settings, timing is everything. Malaria cases must be detected and treated quickly to stop them from spreading. Here, low-dose primaquine is recommended alongside standard treatment because it clears residual parasites more quickly. But governments have been slow to deploy this recommendation because of inadequate safety information. PMI-funded research provided evidence that taking low-dose primaquine is safe. Ministries of Health in countries such as the Federal Democratic Republic of Ethiopia and the Kingdom of Cambodia have since updated their policies to introduce primaquine in their push to eliminate Malaria.

DATA ON THE MOVE

The Republic of Burkina Faso became the first PMI focus country to track its campaign for indoor residual spraying (IRS) fully with mobile data. In FY 2019, PMI trained 547 spray operators to log data via tablets, which fed into a central database. Supervisors used this data in daily debriefs with teams to improve operations. Previously, supervisors relied on paper records, which delayed analysis and tactical decision-making. The success of this initiative demonstrates data can drive results, even in low-resource and conflict-affected places. Partners in other countries such as Kenya are piloting this approach, which PMI will expand in FY 2020.

REAL-TIME DATA, REAL RESULTS

Partners in the countries of the Greater Mekong Subregion are using data to zero in on malaria. Cases of malaria caused by *Plasmodium falciparum* fell by 70 percent in Burma, 50 percent in the Lao People's Democratic Republic, and 28 percent in Cambodia in the first half of 2019 compared with the same period in 2018. For the first time, Cambodia reported no malaria deaths in 2018. PMI has supported stronger surveillance and better targeting of malaria hotspots in forest areas—key to the region's accelerated progress.



This online malaria data system of the Government of Thailand, supported with funding from PMI, enables the Ministry of Health to detect malaria more rapidly and stop transmission. Photo: Wiraporn Srisuwanwattana/USAID

PMI ADDRESSES EMERGING THREATS

PMI is building resilience in our partner countries and constantly evolving to overcome emerging challenges such as resistance to drugs and insecticides, changing disease patterns, conflict, and natural disasters.

Not all mosquitoes are created equal. Knowing when and where species are active is essential to deploying effective mosquito control. PMI funds more than 200 mosquito-surveillance sites across 23 countries, which monitor threats such as resistance to insecticides. Governments and other partners use these data to select the best interventions, strategically deploy resources, and develop resistance mitigation plans.

WHAT ARE PBO NETS?

A new type of net that is more effective against insecticide-resistant mosquitoes because it combines standard pyrethroids with piperonyl butoxide (PBO). PMI ordered more than 6.8 million PBO nets in FY 2019 for programs in Malawi, Rwanda, Senegal, and Tanzania.

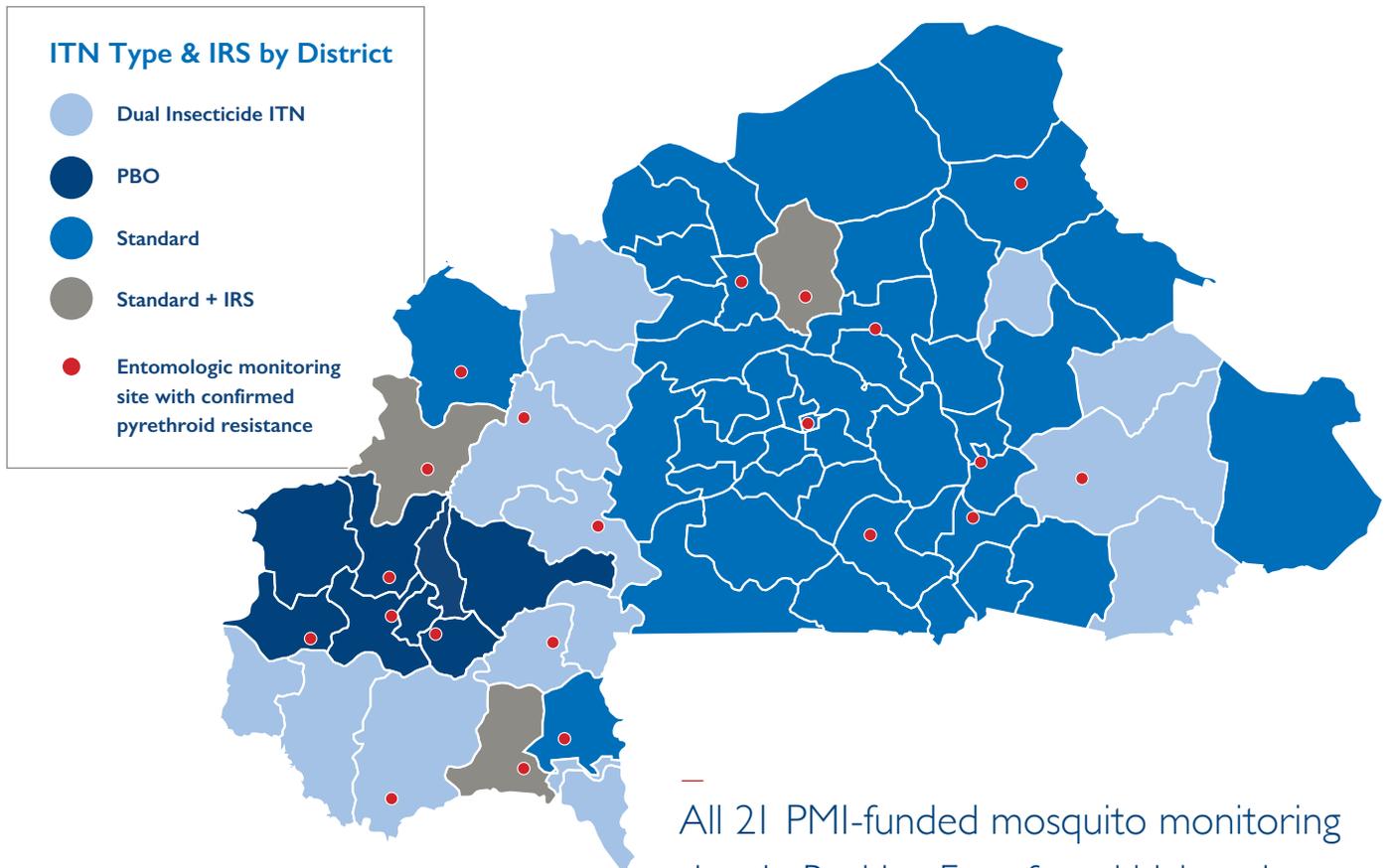


A Community Health Volunteer in Cote d'Ivoire teaches a family about malaria prevention. Photo: Mwangi Kirubi/PMI Impact Malaria

MOVING TO ADDRESS RESISTANCE TO INSECTICIDES

With resistance on the rise, governments and other partners are redefining how to control mosquitoes. The Ministry of Health in Burkina Faso was among the first to launch a comprehensive response with new tools in FY 2019. With assistance from PMI and the Global Fund, the Government distributed new resistance-fighting nets in 22 districts and sprayed

homes with new insecticides in three more districts. PMI worked with the Burkinabe NMCP to strategize where limited supplies of higher-cost products were needed most and where standard ones could still provide protection. PMI is supporting partners in other countries to launch similar strategies where data show growing resistance to insecticides. PMI is also working with other donors to scale new tools to the greatest extent possible.



All 21 PMI-funded mosquito monitoring sites in Burkina Faso found high resistance to several insecticides. As the government rolls out new products to fight resistance, PMI now monitors at least six insecticides per site for effectiveness.

KNOWLEDGE IS POWER

In April 2019, with PMI funds, the Government of the Republic of Sierra Leone opened a refurbished, fully functional insectary able to generate data on local mosquitoes and which insecticides work best. PMI's investment enabled the NMCP to uncover significant and widespread resistance to standard insecticide-treated nets (ITNs). In response, the Government, PMI, and the Global Fund are collaborating to deploy 4.6 million PBO nets nationwide in 2020.

MOSQUITO ALERT: ANOPHELES STEPHENSI INVADES THE DEMOCRATIC FEDERAL REPUBLIC OF ETHIOPIA

Unlike most malaria-transmitting mosquitoes, *Anopheles stephensi* thrives in urban areas. It is resistant to many insecticides, and it evades common detection methods. In 2019, PMI-funded research found *Anopheles stephensi* mosquitoes were widely distributed in Eastern Ethiopia. PMI is working with the governments of Ethiopia and neighboring countries, NGOs, and international organizations to monitor and respond to this threat.

“We have no doubt that the collaboration and partnership with PMI will contribute immensely to the fight against malaria in Sierra Leone.”

— Dr. Samuel Juana Smith, NMCP Manager

U.S. Ambassador to Sierra Leone Maria Brewer tours the country's first insectary for studying malaria, established with PMI funds. Photo: Ramlat Jose/PMI



DRUG-RESISTANCE DETECTIVES

In FY 2019, PMI brought scientists from Ethiopia, Rwanda, and the Republics of Madagascar and Mozambique to learn advanced techniques to detect drug-resistant malaria at the CDC Malaria Lab. Using their new skills, trainees confirmed malaria medicines in their countries remain highly effective. However, some PMI-funded testing detected molecular warning signs that have triggered plans for close follow-up in affected countries.



Trainees Dina Randriamirinjatovo (front) and Tovonahary Rakotomanga from Madagascar with HHS/CDC Malaria Laboratory Coordinator Samaly dos Santos Souza. Photo: Eric Halsey, HHS/CDC

PMI funded 65 sites in sub-Saharan Africa and 36 sites across the Greater Mekong Subregion to study and closely monitor parasite resistance to malaria medicines.

RESPONDING TO DISASTERS

In March 2019, Cyclone Idai, one of the worst tropical storms on record, tore through Mozambique, Malawi, and the Republic of Zimbabwe. PMI immediately mobilized nets to protect people from mosquitoes that were breeding in flood water and contributed to the U.S. Government's emergency-response efforts to set up mobile clinics and warehouses to replace those flattened in the storm.



After Cyclone Idai, temporary USAID-funded warehouses provided a safe harbor for emergency supplies arriving from around the world. Photo: Mickael Breard/USAID Global Health Supply Chain Program

In June 2019, PMI supplied 5,470 nets to centers in the Democratic Republic of the Congo that were testing for Ebola and treating cases of the disease.

A mother in Madagascar airs out the insecticide-treated net she received from PMI before hanging it in her home. Photo: Randy Arra/GHSC-PSM

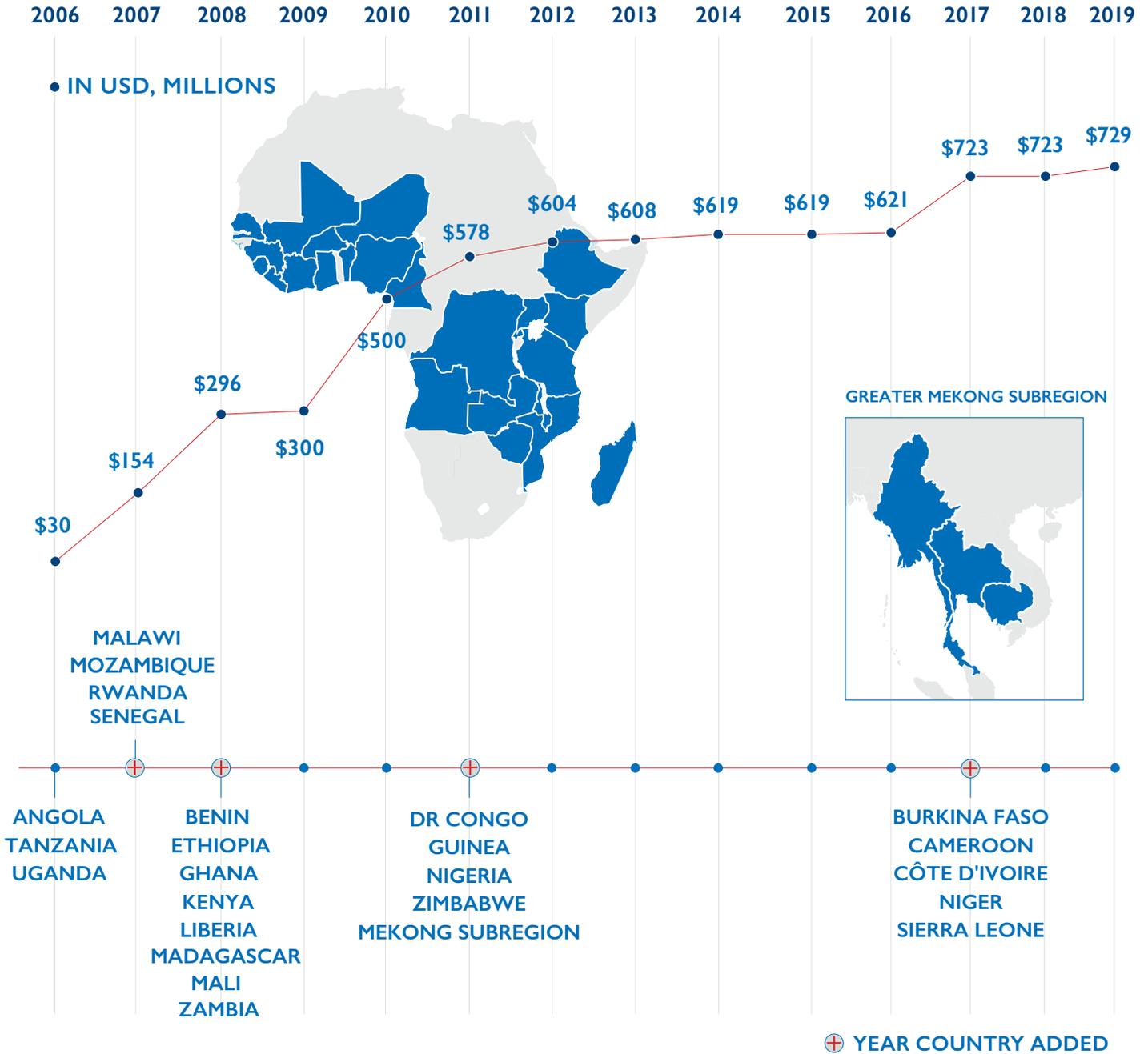


LOOKING FORWARD

At the close of FY 2019, the global malaria community came together with renewed purpose, urgency, and dedication to rally around the Lancet Commission's conclusion that the eradication of malaria is possible by 2050. U.S. technical and financial leadership through PMI, coupled with contributions made by the U.S. Government to the Global Fund, remain essential to advance toward this goal. PMI is proud to partner with governments, NGOs, the private sector, local communities, and other stakeholders to realize the shared vision for a world without malaria.

ANNEX I

FUNDING FOR THE U.S. PRESIDENT'S MALARIA INITIATIVE



Notes: Please refer to the funding table for more information. This graphic does not include funding programmed for malaria beyond PMI's focus countries. USAID also finances programs in the Republic of Burundi and in the Latin America and Caribbean Region, complemented by a portfolio of malaria research and other discrete investments that advance global malaria policy. In addition to the PMI country-level funding shown above, the U.S. Government is the largest donor to the Global Fund to Fight AIDS, Tuberculosis, and Malaria. The Global Fund was the other leading source of donor funding for national malaria programs over the same period.

ANNEX I

FUNDING FOR THE U.S. PRESIDENT'S MALARIA INITIATIVE

COUNTRY ¹	PMI FUNDING START	FY 2019 (\$ MILLION)	ALL YEARS (\$ MILLION) ²
ANGOLA	2005	22	341
BENIN	2006	17	206
BURKINA FASO ³	2017	25	75
BURMA	2013	10	64
CAMBODIA	2013	10	49
CAMEROON	2017	23	66
CÔTE D'IVOIRE	2017	25	75
DRC	2010	50	433
ETHIOPIA	2006	36	445
GHANA	2006	28	333
GUINEA	2011	15	117
KENYA	2006	35	408
LIBERIA	2007	14	162
MADAGASCAR	2006	26	312
MALAWI	2006	24	294
MALI	2006	25	294
MEKONG	2011	3	47
MOZAMBIQUE	2006	29	364
NIGER	2017	18	54
NIGERIA	2010	70	635
RWANDA	2006	18	235
SENEGAL	2006	24	296
SIERRA LEONE	2017	15	45
TANZANIA	2005	44	577
UGANDA	2005	33	413
ZAMBIA	2006	30	309
ZIMBABWE	2011	15	131
HEADQUARTERS	2006	45	442
TOTAL	—	729	7,223

1 In FY 2019, USAID also provided funding for malaria activities in Burundi (\$8 million) and the Latin America and the Caribbean Region (\$5 million).

2 Totals for each country are rounded to the nearest million.

3 USAID provided \$66 million to Burkina Faso between FY 2010 and FY 2016.

ANNEX 2

INVESTMENTS IN COMMODITIES AND TRAINING BY THE U.S. PRESIDENT'S MALARIA INITIATIVE

- The reporting timeframe is the 2019 Federal Fiscal Year (FY), which runs from October 1, 2018 to September 30, 2019.
- PMI counts commodities as “purchased” once the procurement service agent has released a purchase order or invoice for those commodities.
- PMI reports commodities as “distributed” once they have reached the national central medical store or moved beyond this point to regional warehouses, health facilities, or other distribution sites.
- PMI provides a comprehensive package of proven, cost-effective malaria interventions. Intervention packages depend on many factors, including demographics, national policies, climate, resistance patterns, and type of mosquito/parasite. PMI only purchases and distributes commodities where they are recommended, which is partly why the Initiative does not conduct all interventions in all countries.
- PMI works closely with National Malaria Control Programs and other donors to ensure the coordination of purchases and distributions, and to avoid duplications or gaps. This means PMI’s FY 2019 purchases and distributions could differ based on anticipated needs, remaining supplies from previous years, the timing of orders and delivery schedules, and investments by other donors, among other factors. PMI might list purchases or distributions as zero because they occurred just outside (before or after) FY 2019.
- Cumulative purchases are higher than distributions because of shipping times and reserve stocks, among other factors.

ANNEX 2

INSECTICIDE-TREATED NETS (ITNs)

ITNs physically block mosquitoes at night, when they are most likely to bite, and kill mosquitoes that land on them. PMI maintains ITN coverage through a combination of mass-distribution campaigns and continuous distribution via health clinics, schools, and other channels.

FY 2019 HIGHLIGHTS:



32,864,143

ITNs Procured



47,951,233

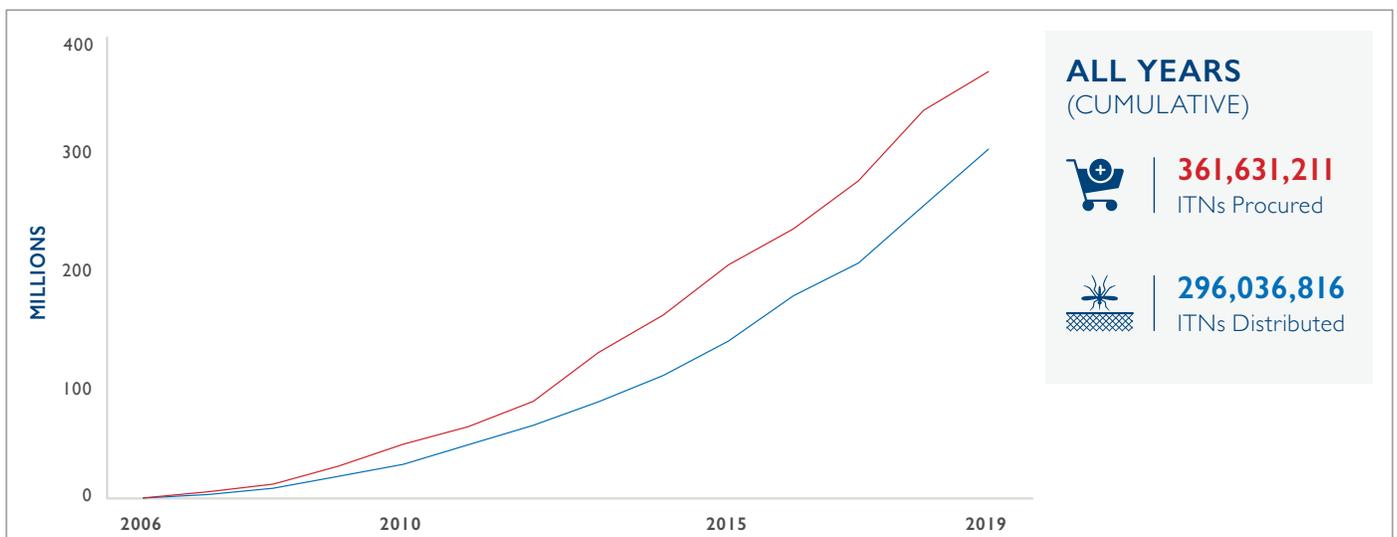
ITNs Distributed



Notes: The table reports the number of ITNs purchased and distributed with PMI's funding. In addition, PMI coordinates with other donors to distribute commodities purchased with non-PMI resources. For more information see the section on Partnerships.

COUNTRY DATA:

COUNTRY	ITNs PROCURED	ITNs DISTRIBUTED
ANGOLA	211,228	1,361,832
BENIN	3,542,273	750,000
BURKINA FASO	350,000	350,000
BURMA	300,000	310,012
CAMBODIA	-	89,936
CAMEROON	-	254,091
CÔTE D'IVOIRE	139,422	680,618
DRC	1,756,000	10,069,211
ETHIOPIA	5,573,113	9,968,181
GHANA	-	1,080,975
GUINEA	250,000	1,322,057
KENYA	490,575	1,823,370
LIBERIA	-	241,500
MADAGASCAR	1,000,000	-
MALAWI	1,400,000	1,181,441
MALI	1,575,000	1,224,136
MEKONG	254,588	-
MOZAMBIQUE	1,597,000	1,517,417
NIGERIA	3,100,000	6,907,709
RWANDA	2,700,000	396,162
SENEGAL	2,013,200	3,420,922
SIERRA LEONE	2,500,000	675,000
TANZANIA	3,399,175	632,096
UGANDA	-	1,794,025
ZAMBIA	-	779,000
ZIMBABWE	712,569	1,121,542



ANNEX 2

INDOOR RESIDUAL SPRAYING (IRS)

IRS treats the inside walls of homes with long-lasting insecticides. It is an effective way to kill mosquitoes and disrupt the transmission of malaria.

FY 2019 HIGHLIGHTS:



4,923,333

Houses Sprayed



18,646,312

Residents Protected



25,147

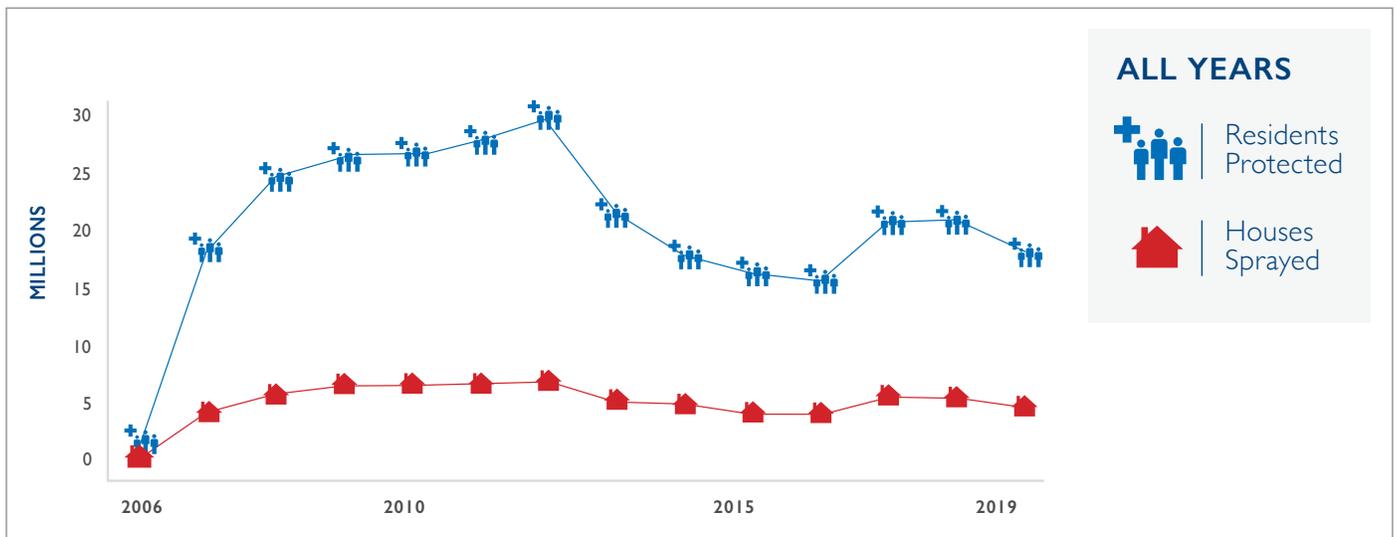
IRS Spray Personnel Trained



Notes: PMI defines “spray personnel” as spray operators, supervisors, and ancillary personnel. It does not include the many people trained to conduct information and community-mobilization programs for IRS campaigns. In addition to the totals above, PMI sprayed 357,057 homes to protect 988,484 people in Uganda with funding from the United Kingdom’s Department for International Development. PMI offers technical assistance to non-PMI IRS campaigns. PMI provided \$77,000 to purchase mosquito-monitoring lab supplies such as reagents for governments in FY 2019.

COUNTRY DATA:

COUNTRY	IRS HOUSES SPRAYED	IRS RESIDENTS PROTECTED
BENIN	335,207	1,077,411
BURKINA FASO	201,901	587,248
ETHIOPIA	487,746	1,334,868
GHANA	298,385	875,481
KENYA	507,777	2,011,860
MALAWI	112,264	501,324
MALI	148,198	690,793
MOZAMBIQUE	387,413	1,663,078
RWANDA	221,712	915,047
TANZANIA	595,923	2,404,010
UGANDA	934,512	3,490,673
ZAMBIA	579,490	2,818,176
ZIMBABWE	112,805	276,343



ANNEX 2

INTERMITTENT PREVENTIVE TREATMENT IN PREGNANCY (IPTp)

Malaria is dangerous for pregnant mothers and their babies. Ensuring women receive IPTp at prenatal visits after the first trimester can prevent malaria. Ideally women receive at least three doses.

FY 2019 HIGHLIGHTS:



26,614,600

IPTp Doses Procured



27,360,969

IPTp Doses Distributed



15,149

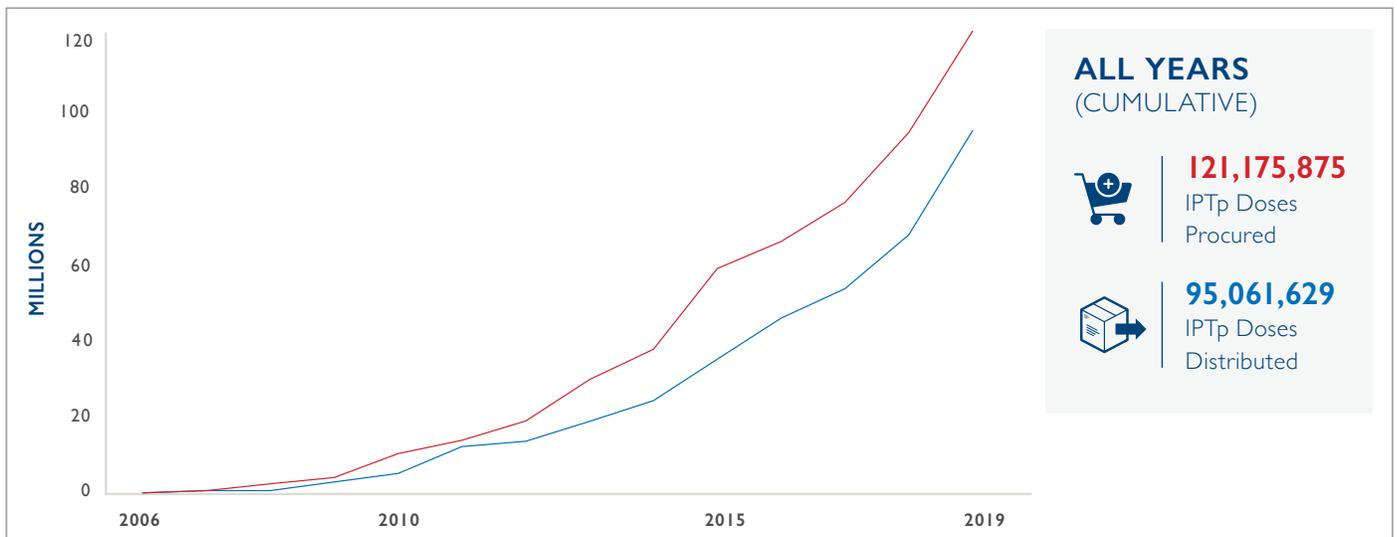
Health Workers Trained in IPTp



Notes: The table reports the number of IPTp (sulfadoxine-pyrimethamine) doses purchased and distributed with PMI's funding. Each dose is three sulfadoxine-pyrimethamine tablets. PMI also funds the provision and promotion of ITNs, as well as the prompt diagnosis and appropriate treatment of malaria and anemia as part of a multi-pronged approach to preventing malaria in pregnancy.

COUNTRY DATA:

COUNTRY	IPTp DOSES PROCURED	IPTp DOSES DISTRIBUTED
ANGOLA	271,333	271,133
BENIN	583,500	599,479
COTE D'IVOIRE	1,099,000	1,075,190
DRC	4,000,000	2,201,355
GHANA	-	1,644,850
GUINEA	-	601,000
LIBERIA	675,000	450,667
MADAGASCAR	1,806,900	753,700
MALAWI	2,400,000	6,144,000
MALI	1,000,017	1,246,017
MOZAMBIQUE	3,553,650	1,625,678
NIGER	1,600,000	1,325,100
NIGERIA	7,763,950	8,577,900
SENEGAL	1,325,550	-
UGANDA	-	750,000
ZIMBABWE	535,700	94,900



ANNEX 2

SEASONAL MALARIA CHEMOPREVENTION (SMC)

SMC is a monthly preventive treatment given to children under five years of age that protects them from contracting malaria during peak transmission season.

FY 2019 HIGHLIGHTS:



20,023,100

SMC Doses Procured



26,229,798

SMC Doses Distributed



52,402

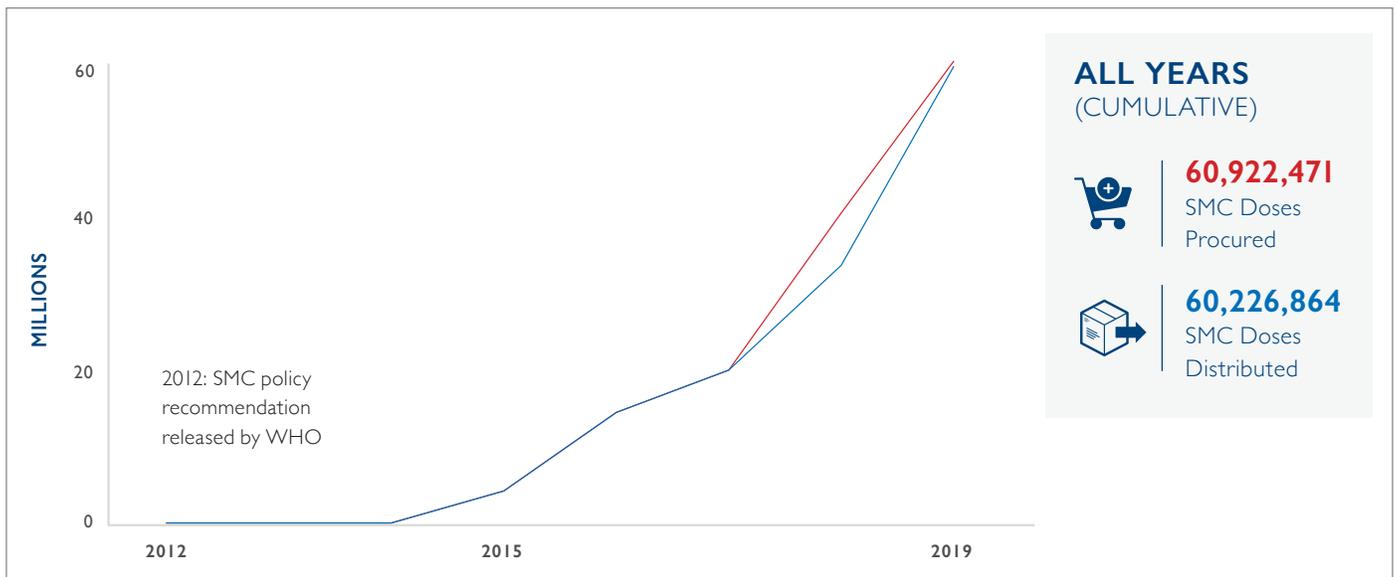
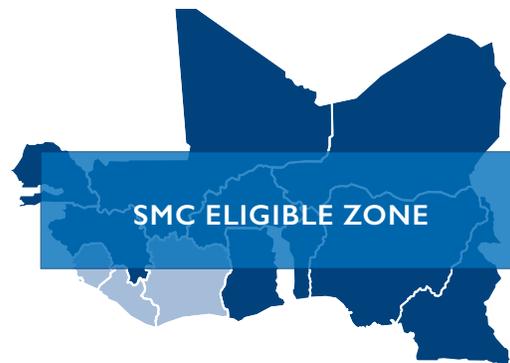
Health Workers Trained in SMC



Notes: SMC is only recommended for certain geographic regions, and PMI funds SMC in all eligible countries it supports. On average, four doses are recommended per child (one per month during the rainy season).

COUNTRY DATA:

COUNTRY	SMC DOSES PROCURED	SMC DOSES DISTRIBUTED
BENIN	589,400	461,620
BURKINA FASO	2,405,000	2,405,000
CAMEROON	5,833,000	6,933,778
GUINEA	1,691,500	1,691,500
MALI	3,000,000	3,000,000
NIGER	5,315,100	5,315,100
NIGERIA	-	1,689,300
SENEGAL	-	3,544,400



ANNEX 2

RAPID DIAGNOSTIC TESTS (RDTs)

RDTs are a quick and easy way to confirm a suspected malaria case. As other diseases can cause similar symptoms to malaria, testing helps ensure patients get the right diagnosis and treatment.

FY 2019 HIGHLIGHTS:



84,510,725
RDTs Procured



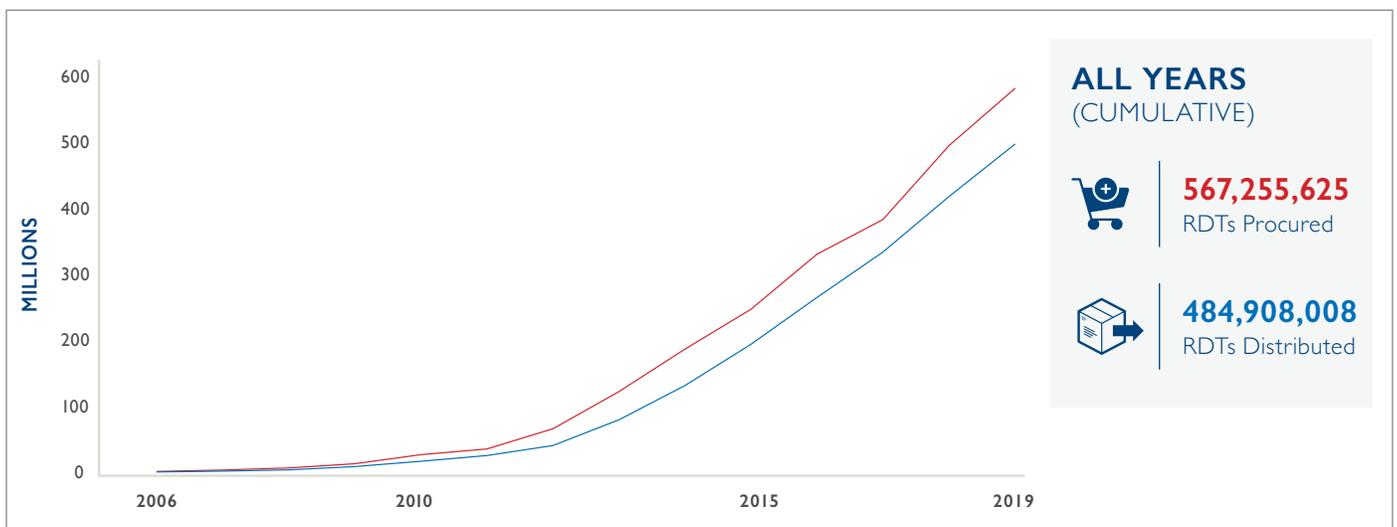
77,506,579
RDTs Distributed



31,059
Health Workers Trained
in Malaria Diagnosis
(RDTs and/or Microscopy)

COUNTRY DATA:

COUNTRY	RDTs PROCURED	RDTs DISTRIBUTED
ANGOLA	2,500,000	2,500,000
BENIN	4,120,000	143,140
BURKINA FASO	8,573,000	8,573,000
BURMA	540,000	339,371
CAMBODIA	85,000	2,925
CAMEROON	1,352,250	494,085
CÔTE D'IVOIRE	1,869,000	1,869,000
DRC	8,100,100	7,192,925
GHANA	4,000,000	5,532,325
GUINEA	1,740,875	717,642
KENYA	3,050,000	4,531,110
LIBERIA	2,400,000	1,875,450
MADAGASCAR	1,000,000	249,075
MALAWI	4,000,000	4,187,500
MALI	1,000,000	2,406,175
MEKONG	100,000	-
MOZAMBIQUE	7,500,000	3,000,000
NIGER	3,082,525	2,172,750
NIGERIA	15,454,775	15,352,056
SENEGAL	600,000	3,333,850
SIERRA LEONE	850,000	840,000
UGANDA	1,853,000	2,452,275
ZAMBIA	9,740,200	9,740,200
ZIMBABWE	1,000,000	1,725



ANNEX 2

ARTEMISININ-BASED COMBINATION THERAPIES (ACTs)

ACTs are the best medicine available for treating the most common form of malaria. Patients are typically cured after a three-day course.

FY 2019 HIGHLIGHTS:



60,019,700

ACT Treatments Procured



79,840,594

ACT Treatments Distributed



39,297

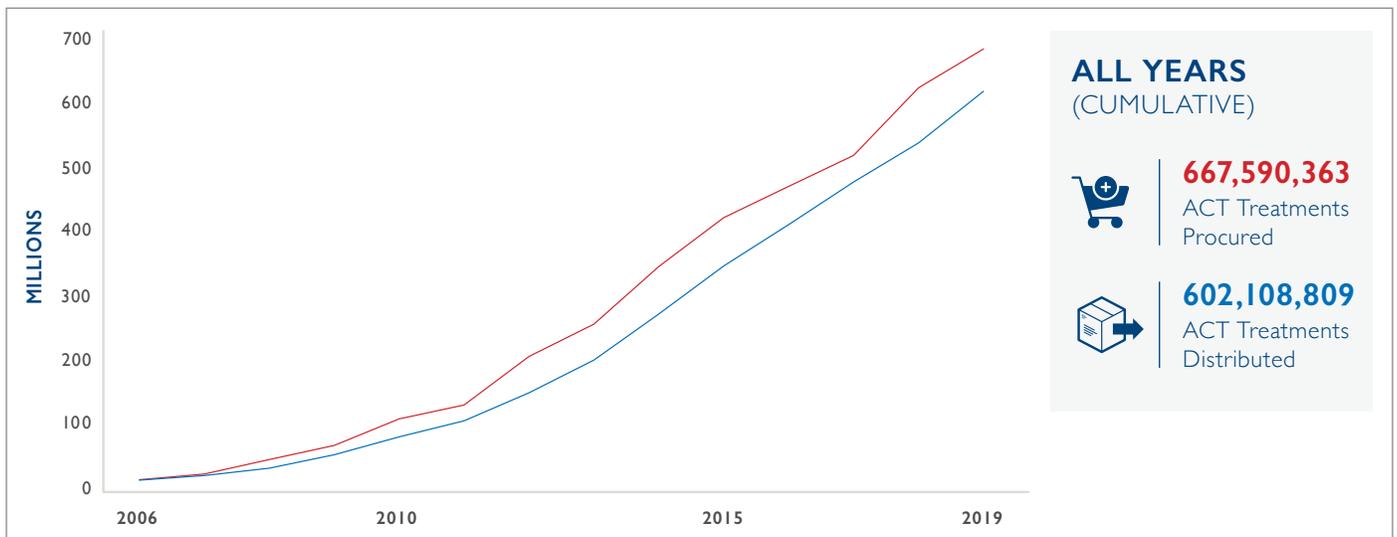
Health Workers Trained in Malaria Case Management



Notes: The table reports the number of ACTs purchased and distributed with PMI's funding. In addition, PMI coordinates with other donors to distribute commodities purchased with non-PMI resources. For more information see the section on Partnerships.

COUNTRY DATA:

COUNTRY	ACTs PROCURED	ACTs DISTRIBUTED
ANGOLA	956,900	945,025
BENIN	1,999,980	2,269,787
BURKINA FASO	6,450,060	6,450,060
BURMA	46,950	13,416
CAMEROON	90,060	482,160
COTE D'IVOIRE	786,000	2,949,480
DRC	4,001,110	10,670,950
GHANA	1,502,435	2,203,070
GUINEA	2,088,300	1,158,356
KENYA	1,388,250	6,619,290
LIBERIA	553,675	553,675
MADAGASCAR	1,092,050	513,440
MALAWI	1,883,820	3,075,302
MALI	1,429,140	1,422,945
MOZAMBIQUE	6,725,010	4,162,103
NIGER	770,010	1,373,910
NIGERIA	16,353,630	24,060,045
RWANDA	915,630	2,459,040
SENEGAL	996,410	902,818
SIERRA LEONE	1,452,420	810,000
TANZANIA	3,184,020	586,809
UGANDA	1,042,770	2,262,480
ZAMBIA	3,500,040	3,500,040
ZIMBABWE	811,030	396,393



ANNEX 2

PARTNERSHIPS

Commodities Purchased by Other Donors and Distributed with PMI Support

Fighting malaria together makes us more effective and achieves greater impact than any of us could alone. PMI works with National Malaria Control Programs in close partnership with other multilateral and bilateral donors, academic and research institutions, civil society, the private sector, faith-based organizations, advocacy groups, and NGOs, among others. PMI's strategic approach, working alongside Ministries of Health and other malaria partners to identify priority investments, helps ensure PMI resources leverage and complement funds from other donors and partners to maximize impact.

COUNTRY DATA:

COUNTRY	ITNs Other Donors	ACTs Other Donors
ANGOLA	958,432	-
BENIN	-	1,585,768
CAMBODIA	16,443	-
CAMEROON	2,680,807	-
GUINEA	2,355,470	461,618
LIBERIA	-	2,259,460
MALAWI	105,726	628,080
MOZAMBIQUE	-	3,305,261
SIERRA LEONE	95,600	-
TANZANIA	2,547,788	-
UGANDA	523,117	-
ZIMBABWE	-	1,222,356

FY 2019 HIGHLIGHTS:



9,462,543

ACT Treatments Procured by Other Donors Distributed by PMI



9,283,383

ITNs Procured by Other Donors Distributed by PMI

ALL YEARS (CUMULATIVE)



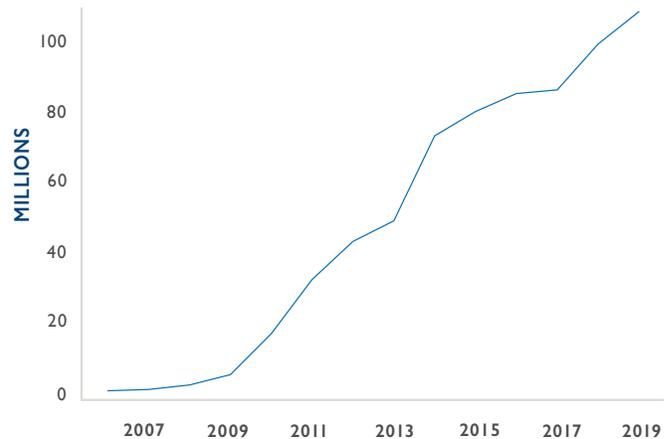
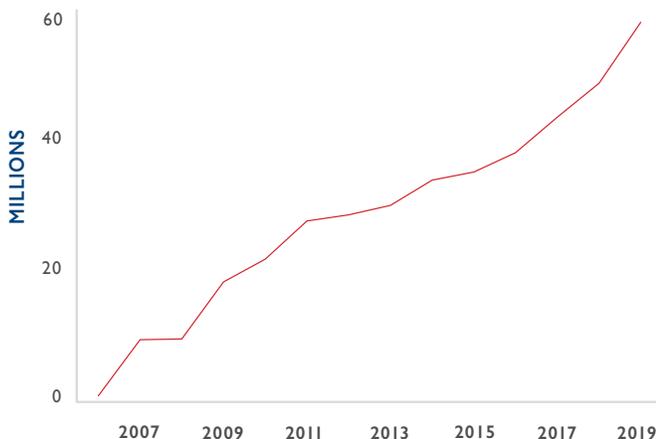
57,977,548

ACT Treatments Procured by Other Donors Distributed with PMI Support



108,730,547

ITNs Procured by Other Donors Distributed with PMI Support



ANNEX 3

ALL-CAUSE MORTALITY RATES AND INTERVENTION COVERAGE IN FOCUS COUNTRIES OF THE U.S. PRESIDENT'S MALARIA INITIATIVE

Data in this annex include a “baseline” survey for each indicator, defined as the point closest to establishing PMI focus-country status, as well as the “most recent” comparable survey available.* Two surveys are not yet available for all indicators for all countries.

For more information on survey data, visit the website of the Demographic and Health Services (DHS) Program and the website of the Multiple-Indicator Cluster Surveys (MICS) conducted by the United Nations Children's Fund (UNICEF).

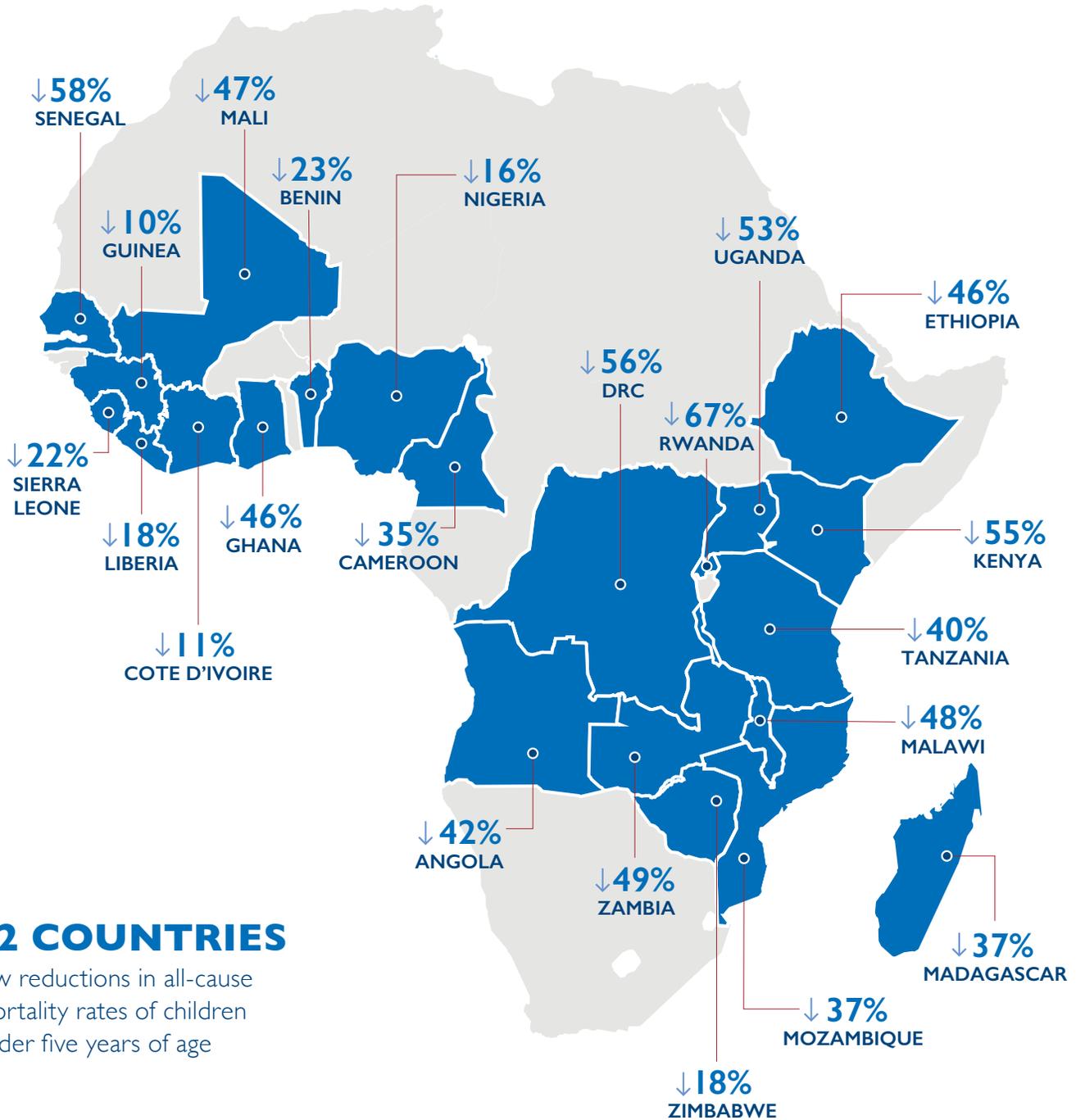
** The 2016 Malaria Indicator Survey (MIS) in Zimbabwe was conducted subnationally in 45 moderate- and high-risk districts for malaria; the DHS survey was conducted nationally.*



Two-and-a-half year old Vincent receives treatment for severe malaria at a hospital in Kenya. Photo: Mwangi Kirubi/PMI Impact Malaria.

ANNEX 3

PERCENT REDUCTIONS IN ALL-CAUSE MORTALITY IN CHILDREN UNDER AGE FIVE IN PMI COUNTRIES IN AFRICA



22 COUNTRIES

saw reductions in all-cause mortality rates of children under five years of age

Note: The 22 countries highlighted in blue have at least two data points from nationwide household surveys that measured all-cause mortality in children under the age of five. Burkina Faso and Niger are outlined in white but were not included as data points, as they do not yet have two comparable household surveys available.

ANNEX 3

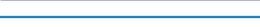
OWNERSHIP OF INSECTICIDE-TREATED NETS (ITNs) IN PMI COUNTRIES

COUNTRY	SURVEY	ITN OWNERSHIP (%)	HOUSEHOLDS WITH AT LEAST ONE ITN (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	11 31	 31%
BENIN	DHS 2006 DHS 2017	25 92	 92%
BURKINA FASO	MIS 2017-2018 KIR	75	 75%
CAMEROON	DHS 2011 DHS 2018 KIR	36 73	 73%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	68 76	 76%
DRC	MICS 2010 MICS 2017-18 snapshots	51 63	 63%
ETHIOPIA	MIS 2007 MIS 2015-2016	65 64	 64%
GHANA	MICS 2006 MIS 2016	19 73	 73%
GUINEA	MICS 2007 DHS 2018 KIR	8 44	 44%
KENYA	MIS 2007 MIS 2015	48 63	 63%
LIBERIA	MIS 2009 MIS 2016	47 62	 62%
MADAGASCAR	DHS 2008-2009 MICS 2018 snapshot	57 78	 78%
MALAWI	MICS 2006 MIS 2017	38 82	 82%
MALI	DHS 2006 DHS 2018	50 90	 90%
MOZAMBIQUE	MIS 2007 MIS 2018	16 82	 82%
NIGER	DHS 2012	61	 61%
NIGERIA	MIS 2010 DHS 2018	42 61	 61%
RWANDA	DHS 2005 MIS 2017-2018	15 84	 84%
SENEGAL	MIS 2006 cDHS 2018	36 77	 77%
SIERRA LEONE	MIS 2016 DHS 2019 KIR	60 68	 68%
TANZANIA	DHS 2004-2005 MIS 2017	23 78	 78%
UGANDA	DHS 2006 MIS 2018 KIR	16 83	 83%
ZAMBIA	MIS 2006 MIS 2018	38 80	 80%
ZIMBABWE	DHS 2010-2011 MIS 2016	25 58	 58%

"Ownership" is the percentage of households that own at least one ITN.

ANNEX 3

ACCESS TO ITNs IN PMI COUNTRIES

COUNTRY	SURVEY	ITN ACCESS (%)	ITN ACCESS (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	15 20	 20%
BENIN	DHS 2006 DHS 2017	15 77	 77%
BURKINA FASO	MIS 2014 MIS 2017-2018 KIR	71 55	 55%
CAMEROON	MICS 2014 DHS 2018 KIR	56 59	 59%
COTE D'IVOIRE	MICS 2016	64	 64%
DRC	MICS 2010 MICS 2017-18 snapshots	30 44	 44%
ETHIOPIA	DHS 2005 MIS 2015-16	2 49	 49%
GHANA	DHS 2003 MIS 2016	2 66	 66%
GUINEA	DHS 2005 DHS 2018	2 31	 31%
KENYA	MIS 2007 MIS 2015	5 53	 53%
LIBERIA	MIS 2009 MIS 2016	25 42	 42%
MADAGASCAR	DHS 2008-2009 MICS 2016	35 62	 62%
MALAWI	DHS 2004 MIS 2017	19 63	 63%
MALI	DHS 2006 DHS 2018	30 75	 75%
MOZAMBIQUE	DHS 2011 MIS 2018	37 69	 69%
NIGER	DHS 2012	37	 37%
NIGERIA	MIS 2010 DHS 2018 KIR	29 47	 47%
RWANDA	DHS 2005 MIS 2017-2018	9 72	 72%
SENEGAL	MIS 2006 cDHS 2018	18 62	 62%
SIERRA LEONE	MIS 2016	37	 37%
TANZANIA	DHS 2004-2005 MIS 2017	16 63	 63%
UGANDA	DHS 2006 MIS 2018 KIR	9 72	 72%
ZAMBIA	DHS 2007 MIS 2018	34 67	 67%
ZIMBABWE	DHS 2010-2011 MIS 2016	20 13	 13%

"Access" is the percentage of the population who could sleep under an ITN if up to two individuals per household used one.

ANNEX 3

USE OF ITNs BY CHILDREN UNDER AGE FIVE IN PMI COUNTRIES

COUNTRY	SURVEY	U5 ITN USE (%)	CHILDREN UNDER FIVE WHO SLEPT UNDER AN ITN THE PREVIOUS NIGHT (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	18 22	 22%
BENIN	DHS 2006 DHS 2017	20 78	 78%
BURKINA FASO	MIS 2017-2018 KIR	54	 54%
CAMEROON	DHS 2011 DHS 2018 KIR	21 60	 60%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	37 60	 60%
DRC	MICS 2010 MICS 2017-18 snapshots	38 51	 51%
ETHIOPIA	MIS 2007 MIS 2015-2016	41 45	 45%
GHANA	MICS 2006 MIS 2016	22 52	 52%
GUINEA	MICS 2007 DHS 2018 KIR	5 27	 27%
KENYA	MIS 2007 MIS 2015	39 56	 56%
LIBERIA	MIS 2009 MIS 2016	26 44	 44%
MADAGASCAR	DHS 2008-2009 MICS 2018 snapshot	16 62	 62%
MALAWI	MICS 2006 MIS 2017	25 68	 68%
MALI	DHS 2006 DHS 2018	27 79	 79%
MOZAMBIQUE	MIS 2007 MIS 2018	7 73	 73%
NIGER	DHS 2012	20	 20%
NIGERIA	MIS 2010 DHS 2018	29 52	 52%
RWANDA	DHS 2005 MIS 2017-2018	13 68	 68%
SENEGAL	MIS 2006 cDHS 2018	16 56	 56%
SIERRA LEONE	MIS 2016	44	 44%
TANZANIA	DHS 2004-2005 MIS 2017	16 55	 55%
UGANDA	DHS 2006 MIS 2018 KIR	10 60	 60%
ZAMBIA	MIS 2006 MIS 2018	24 69	 69%
ZIMBABWE	DHS 2010-2011 MIS 2016	8 33	 33%

"Use" is the percentage of children under age five who slept under an ITN the night before the survey.

ANNEX 3

USE OF ITNs BY PREGNANT WOMEN IN PMI COUNTRIES

COUNTRY	SURVEY	ITN USE PREGNANT WOMEN (%)	ITN ACCESS (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	22 23	 23%
BENIN	DHS 2006 DHS 2017	20 80	 80%
BURKINA FASO	MIS 2017-2018 KIR	58	 58%
CAMEROON	DHS 2011 DHS 2018 KIR	20 61	 61%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	40 53	 53%
DRC	MICS 2010 MICS 2017-18 snapshots	43 52	 52%
ETHIOPIA	MIS 2007 MIS 2015-16	42 44	 44%
GHANA	DHS 2003 MIS 2016	3 50	 50%
GUINEA	MICS 2007 DHS 2018 KIR	3 28	 28%
KENYA	MIS 2007 MIS 2015	40 58	 58%
LIBERIA	MIS 2009 MIS 2016	33 40	 40%
MADAGASCAR	DHS 2008-2009 MICS 2016	46 69	 69%
MALAWI	DHS 2004 MIS 2017	15 63	 63%
MALI	DHS 2006 DHS 2018	29 84	 84%
MOZAMBIQUE	MIS 2007 MIS 2018	7 76	 76%
NIGER	DHS 2012	20	 20%
NIGERIA	MIS 2010 DHS 2018	34 58	 58%
RWANDA	DHS 2005 MIS 2017-2018	17 69	 69%
SENEGAL	MIS 2006 cDHS 2018	17 56	 56%
SIERRA LEONE	MIS 2016	44	 44%
TANZANIA	DHS 2004-2005 MIS 2017	16 51	 51%
UGANDA	DHS 2006 MIS 2018 KIR	10 65	 65%
ZAMBIA	MIS 2006 MIS 2018	25 71	 71%
ZIMBABWE	DHS 2010-2011 MIS 2016	9 24	 24%

"Use" is the percentage of pregnant women who slept under an ITN the night before the survey.

ANNEX 3

COVERAGE OF TWO DOSES OF INTERMITTENT PREVENTIVE TREATMENT OF MALARIA IN PREGNANCY (IPTp) IN PMI COUNTRIES

COUNTRY	SURVEY	IPTp2 (%)	IPTp2 (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	3 37	 37%
BENIN	DHS 2006 DHS 2017	2 34	 34%
BURKINA FASO	MIS 2017-2018	82	 82%
CAMEROON	DHS 2011 DHS 2018 KIR	26 54	 54%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	18 47	 47%
DRC	MICS 2010 MICS 2017-18 snapshots	21 31	 31%
GHANA	MICS 2006 MIS 2016	28 78	 78%
GUINEA	DHS 2005 DHS 2018 KIR	4 62	 62%
KENYA	MIS 2007 MIS 2015	14 56	 56%
LIBERIA	MIS 2009 MIS 2016	45 55	 55%
MADAGASCAR	DHS 2008-2009 MIS 2016	6 22	 22%
MALAWI	MICS 2006 MIS 2017	47 76	 76%
MALI	DHS 2006 DHS 2018 KIR	10 55	 55%
MOZAMBIQUE	MIS 2007 MIS 2018	16 61	 61%
NIGER	DHS 2012	35	 35%
NIGERIA	MIS 2010 DHS 2018 KIR	13 40	 40%
SENEGAL	MIS 2006 cDHS 2018	49 64	 64%
SIERRA LEONE	MIS 2016	71	 71%
TANZANIA	DHS 2004-2005 MIS 2017	22 56	 56%
UGANDA	DHS 2006 MIS 2018 KIR	16 72	 72%
ZAMBIA	MIS 2006 MIS 2018	57 81	 81%
ZIMBABWE	DHS 2010-2011 MIS 2016	7 36	 36%

Data come from nationwide household surveys that measured the coverage of IPTp2 for pregnant women, defined as the percentage of surveyed women who received at least two doses of sulfadoxine-pyrimethamine during their last pregnancy in the past two years. IPTp is not part of the national policy in Ethiopia and the Republic of Rwanda. The Republics of Kenya, Madagascar, and Zimbabwe implement IPTp subnationally because of heterogeneous transmission of malaria with areas of low risk. Data here are national, and therefore likely underestimate coverage in priority areas.

ANNEX 3

COVERAGE OF THREE DOSES OF IPTp IN PMI COUNTRIES

COUNTRY	SURVEY	IPTp3 (%)	IPTp3 (%) (Most Recent Survey Value)
ANGOLA	MIS 2006-2007 DHS 2015-2016	1 19	 19%
BENIN	DHS 2006 DHS 2017	0 14	 14%
BURKINA FASO	MIS 2014 MIS 2017-2018 KIR	22 58	 58%
CAMEROON	DHS 2011 DHS 2018 KIR	12 32	 32%
COTE D'IVOIRE	DHS 2011-2012 MICS 2016	7 23	 23%
DRC	DHS 2013	5	 5%
GHANA	DHS 2008 MIS 2016	27 60	 60%
GUINEA	MICS 2016 DHS 2018 KIR	30 36	 36%
KENYA	MIS 2007 MIS 2015	6 22	 22%
LIBERIA	MIS 2009 MIS 2016	10 22	 22%
MADAGASCAR	DHS 2008-2009 MICS 2018 snapshot	2 15	 15%
MALAWI	DHS 2004 MIS 2017	14 41	 41%
MALI	MIS 2015 DHS 2018 KIR	18 28	 28%
MOZAMBIQUE	DHS 2011 MIS 2018	10 41	 41%
NIGER	DHS 2012	9	 9%
NIGERIA	MIS 2010 DHS 2018 KIR	5 17	 17%
SENEGAL	MIS 2006 DHS 2018	7 22	 22%
SIERRA LEONE	MIS 2016	31	 31%
TANZANIA	DHS 2004-2005 MIS 2017	3 26	 26%
UGANDA	DHS 2006 MIS 2018 KIR	6 41	 41%
ZAMBIA	DHS 2007 MIS 2018	41 67	 67%
ZIMBABWE	DHS 2010-2011 MIS 2016	5 20	 20%

Data come from nationwide household surveys that measured coverage of IPTp3 for pregnant women, defined as the percentage of surveyed women who received at least three doses of sulfadoxine-pyrimethamine during their last pregnancy in the past two years. IPTp is not part of the national policy in Ethiopia and Rwanda. Kenya, Madagascar, and Zimbabwe implement IPTp subnationally, focusing on areas that are most at risk. Coverage estimates included here are national and therefore likely underestimate coverage in priority areas.

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